Russian Journal of Organic Chemistry 1996 vol.32 N12, pages 1795-1798

Reactivity of One-Coordinate Phosphorus Compounds. Kinetics of Diels-Alder Reactions of Tetraphenylcylopentadienone with Compounds Containing C≡P, C≡C, and C≡N Bonds

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Abstract

The kinetics of the Diels-Alder reactions of tetraphenylcyclopentadiene with tert-butylphosphaethyne, tert-butylacetylene, and butyronitrile have been studied in toluene at 110°C. The rate constants of these reactions, calculated with regard to thermal reduction of tetraphenylcyclopentadiene (rate constant 4.27 x 10-7 s-1), are 2.87 x 10-4, 4.09 x 10-6, and 2.7 x 10-8 1 mol-1 s-1, respectively. The reactions can be classed with those involving diene as acceptor and dienophile as donor.